Human Cardiac Chip for Assessment of Proarrhythmic Risk

Grant Award Details

Human Cardiac Chip for Assessment of Proarrhythmic Risk

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-10090

Project Objective: To optimize and validate a human “heart on a chip” microphysiological system (MPS) for more accurate drug screening and prediction of proarrhythmic risk

Investigator:

Name:	Kevin Healy
Institution:	University of California, Berkeley
Type:	PI

Disease Focus: Toxicity, Heart Disease

Award Value: $899,595

Status: Active

Grant Application Details

Application Title: Human Cardiac Chip for Assessment of Proarrhythmic Risk

Public Abstract:

Research Objective

This proposal will develop patient specific 'heart-on-a-chip' devices that will significantly impact early screening of drugs to accurately predict drug-induced proarrhythmia and toxicity.

Impact

Patient specific 'heart-on-a-chip' device will significantly reduce the cost of bringing a new drug candidate to market while improving efficacy.

Major Proposed Activities

- To improve the maturity of human induced pluripotent stem cell derived cardiac myocytes (hiPSC-CM) in the heart chip.
- To validate the predictive response of the improved cardiac MPS using drugs with known arrhythmia risk.
- To assess the response of drugs with known arrhythmia risk on a cardiac chip with LQT1 hiPSC-CMs.
- To develop a Target Product Profile/Product Concept Document for the cardiac MPS.

Statement of Benefit to California:

We will create a patient specific 'heart-on-a-chip' device that will have a significant impact on the development of drugs. A major aspect of this proposal is to establish a heart chip assay to accurately predict drug-induced proarrhythmia and toxicity. If successful, we can reduce the cost and time needed to bring new drugs to market, thereby improving the lives of many Californians and significantly reducing the cost to California's healthcare system.
